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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,598	10/10/2003	Johan Hulten	0173.043.PCUS00	2597
28694 7590 05/11/2007 NOVAK DRUCE & QUIGG, LLP 1300 EYE STREET NW SUITE 1000 WEST TOWER WASHINGTON, DC 20005			EXAMINER SY, MARIANO ONG	
			ART UNIT 3683	PAPER NUMBER
			MAIL DATE 05/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/605,598

Applicant(s)

HULTEN, ET AL.

Examiner

Mariano Sy

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

DEVON C. KRAMER
PATENT EXAMINER

[Signature]
5/10/07

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on March 5, 2007 has been received.
2. Claim 18 is objected to because of the following informalities:
Claim 18, line 2 "the brake lining" should be --the brake lining means--.
Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1, 2, and 5-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daghigh et al. (US 5,568,846) in view of Tasker et al. (US 5,855,416) and in view of Okayama et al. (US 6,620,860) or Wirth (DE 4133593) or Kappich (DE 19507102).

The claims are directed to essentially a ratio between a radius of a brake rotor and a radial extent of a brake lining for a disk brake.

It would have been obvious to one of ordinary skill in the art to modify the disk brake of Daghigh et al. for heavy vehicles having an axle pressure between 6 to 14 tons, as taught by Tasker et al. (see col. 5, line 60 to col. 6, line 7), in that the particular load or pressure at the axles is typical for heavy vehicle and is based upon the load that the artisan intends to carry. As to the material of the brake rotor being "cast iron alloy", it would have been obvious to one of ordinary skill in the art to select the material as taught by Okayama et al. (see col. 1, lines 14-15), since it has been held to be within the general skill in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

As for the particular recognition by Applicants that correlating a ratio between the brake lining extent and the radius of the brake rotor is significant, each one of the references to Okayama et al. (fig. 3 and col. 6, lines 13-25 wherein the ratio is 0.30), Wirth and Kappich recognizes the relationship and its significance. It would have been obvious to one of ordinary skill in the art to modify Daghigh et al. by routine experimentation to optimize the ratio of B/R as per Okayama et al., Wirth and Kappich, the brake torque, modulus of elasticity and any variety of parameters typically known,

calculated or estimated by a brake artisan to arrive at the most suitable disc brake for the environment and application at hand with reduced vibration.

See MPEP 2144.05 under "Optimization". Also see MPEP 2144.04 under "Changes in Size/Proportion".

The instant specification describes a series of tests and observations but fails to present any statement or evidence that the claimed selections are critical.

6. Applicants' arguments filed March 5, 2007 have been fully considered but they are not persuasive. Applicants' arguments in the remarks have been considered but not convincing based on the above reasons. The claims are directed to a disk brake wherein the ratio B/R between the radial extent B of lining 32 and radius R of rotor 8 is less than 0.38.

Okayama et al. disclosed in fig. 3 and col. 6, lines 13-25 wherein the ratio is 0.30 (rotor diameter is 60 and width of brake lining is 10) which is less than 0.38, wherein the radial extent of the brake lining (read from the x-axis, horizontal) is 10 and the radius of the rotor is 30. This clearly reads on the claim language. Applicants' calculation using trigonometry, that the active radius equals 25.15 is confusing.

As for the variety of parameters such as modulus of elasticity and braking torque are based on the material used. As stated above, one of ordinary skill in the art through routine experimentation would select any variety of ratios based upon material used with known modulus of elasticity for the type and size of rotor, brake lining, etc., in order to arrive at the optimum ratio.

Applicants' argued in the Remarks that Okayama does not mention anything about the relation between the rotor and the friction material. Examiner disagreed since Okayama shows in fig. 3 the dimensions of the brake lining and the size of the rotor clearly disclose the relation between the rotor and the brake lining.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 571-272-7126. The examiner can normally be reached on Mon.-Fri. from 8:30 A.M. to 2:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon C. Kramer, can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Sy
M. Sy

May 3, 2007

DEVON C. KRAMER
PATENT EXAMINER

Devon C. Kramer
5/10/07